

Question 1: *Do you have any comments on the use of the 3.6 to 3.8 GHz band by existing services?*

The MOD operates a small number of locations, which are operated under a combination of RSA and receiving at risk. In particular the MOD operates a site at Bude in Cornwall (NGR: SS 208 126) that uses the frequency range above 3.4 GHz and extends into the band 3.6 to 3.8 GHz. The operation below 3.6 GHz has been recognised by Ofcom and protection will be afforded in the terms of the proposed auction of spectrum in this range. The Information Memorandum published by Ofcom on 26 October 2015, in Annex 5 (Notice of coordination procedure for MOD sites related to 3.4 GHz licences), identifies the coordination conditions to be imposed on any new licensee in that band.

Operations above 3.6 GHz do not at present benefit from any protection from other services. The use of the band by fixed links is light and remote from the site in question, as recognised in the Ofcom consultation document. It is proposed that such use will be limited and possibly removed altogether in the future. The use of the band by the fixed-satellite service is in the space-to-Earth direction and hence does not pose a threat to operations at Bude. However the proposed introduction of mobile services in the band presents a totally different situation and potentially a serious threat to our operations.

ROES typically do not have any direct connection to the transmitting satellite, so expecting any shift in frequency/channel use in a UK-specific situation is unrealistic. As with all satellite issues, such a change would need to be international, on an ITU Regional basis at the very least. The WRC-19 Agenda Item 9.1.3 is considering the possibility of new nGSO satellite services in the 3.7 – 4.2 GHz range, for example. There is also the risk that if the existing Earth stations migrate to 3.8 to 4.2 GHz due to the decision, in the future Ofcom will also seek to make available the 3.8 to 4.2 GHz band for future mobile data services, thereby leaving the Earth stations with no suitable alternative frequencies to migrate to.

Question 2: *Do you agree with our identification of a trend towards the use of mobile in the 3.6 to 3.8 GHz band?*

3.6 to 3.8 GHz could be deployed where there is a high traffic density (e.g. hot spots) to provide capacity but further engagement with stakeholders needs to be had to clarify if industry feels the same as Ofcom regarding the band being a principal candidate for the deployment of 5G mobile data services. Ofcom assume that only 5G user service technologies will be deployed in the band but fail to acknowledge that the band could also be used for 5G supporting technologies such as backhaul via current fixed link provisions.

Question 3: *Do you agree with our high level proposal to make 116 MHz within the 3.6 to 3.8 GHz band available for mobile and 5G services, bearing in mind our statutory duties and the high level trends we have identified?*

Spectrum could be made available for mobile/5G services if sufficient demand for these services outweighs the benefit of alternative uses. However, ROES in particular should be considered and protected as incumbent users.

Question 4: *Do you agree with our general approach regarding spectrum currently licensed to UK Broadband?*

No comment.

Question 5: *Do you agree with our assumptions, methodology, and conclusions with regards to potential coexistence between mobile and existing fixed links and satellite earth stations?*

Further technical analysis needs to be carried out in order to determine the size of the areas where potential interference between mobile base stations and satellite Earth stations, and to demonstrate why there is a need to remove these services (or operate them at risk) rather than protect them.

Question 6: *Do you have a view on any of the two options we identified?*

The options presented by Ofcom appear to only be assessed in terms of spectrum availability for 5G, rather than citizen and consumer benefit, and spectrum efficiency. Both options also only consider nationwide licensing for mobile/5G services.

Question 7: *Do you have any quantitative evidence on the costs and benefits associated with the options? This include costs for existing users and/or consumers of existing services associated with potential changes, and benefits to UK consumers in gaining access to mobile services in this band.*

Not applicable

Question 8: *Do you have any other suggestions that would allow widespread 5G availability using the 3.6 to 3.8 GHz band across the UK while allowing certainty for at least some existing users to continue to provide the benefits currently provided by use of the 3.6 to 3.8 GHz band?*

The existing RSA for ROES approach should be used to permit satellite downlinking to continue in this band, with any other licensee respecting and protecting locations with RSA.

Question 9: *Do you have any comments in relation to these proposals?*

Any changes to the use of this band will require engagement between the MOD and Ofcom to ensure Defence capabilities are not unduly impacted.

The MOD would therefore require as a minimum that protection of the site at Bude be incorporated into the conditions attached to any authorisation of the band 3.6 to 3.8 GHz for mobile services. This could be achieved by extending the coordination procedure already agreed for the band below 3600 MHz, to the band 3.6 to 3.8 GHz. The protection requirement will be needed for the foreseeable future.

We do not consider that such a requirement would have a significant effect on the proposed opening of the band to mobile use. The coordination requirement would only apply in an area up to 25 km from Bude. This area is lightly populated so the impact to

the provision of mobile services is likely to be limited by this coordination.